

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims

Claim 1 (canceled)

Claim 2 (currently amended) ~~The method of claim 1~~ A method for producing a transition between a first element having a first refractive index difference (Δn) percentage and a second element having a second Δn percentage higher than the Δn of said first element, comprising the steps of:

controlling the Δn along a length of electro-optic polymer to achieve a gradual transition from a low Δn to a high Δn along said length; and
optically coupling said length of electro-optic polymer between said first element and said second element,

wherein said controlling step comprises at least the step of:

performing selective deposition on a length of undoped substrate having plural doping regions, using increasing doping levels with each successive doping region.

Claim 3 (original) The method of claim 2, wherein said selective deposition step is performed using a polymer dopant.

Claim 4 (original) The method of claim 3, wherein said polymer dopant is deposited through photolithographic masking.

Claim 5 (original) The method of claim 4, wherein said polymer dopant is deposited by spraying said polymer dopant through said photolithographic masking onto said substrate.

Claim 6 (original) The method of claim 4, wherein said polymer dopant is deposited by dipping said photolithographically-masked substrate into said polymer dopant.

Claim 7 (original) The method of claim 4, wherein said polymer dopant is deposited using vacuum pyrolysis.

Claim 8 (currently amended) ~~The method of claim 1~~ A method for producing a transition between a first element having a first refractive index difference (Δn) percentage and a second element having a second Δn percentage higher than the Δn of said first element, comprising the steps of:

controlling the Δn along a length of electro-optic polymer to achieve a gradual transition from a low Δn to a high Δn along said length; and
optically coupling said length of electro-optic polymer between said first element and said second element,

wherein said controlling step comprises at least the step of:

performing diffusion doping on a length of undoped substrate having plural doping regions, increasing the diffusion time with each successive doping region.

Claim 9 (original) The method of claim 8, wherein said step of performing diffusion doping comprises the steps of:

depositing a layer of an impurity source on said entire length of said substrate and leaving said layer on said substrate for a predetermined time period;

removing a portion of said layer covering a first of said plural doping regions and leaving the remainder of said layer on said substrate for a second predetermined time period;

repeating said removing step for each of said plural doping regions until all of said layer has been removed.

Claims 10 – 12 (canceled)

12. A transition structure situatable between a first element having a first refractive index difference (Δn) percentage and a second element having a second Δn percentage higher than the Δn of said first element, said transition structure obtainable by the process steps of:

controlling the Δn along a length of electro-optic polymer to achieve a gradual transition from a low Δn to a high Δn along said length; and

optically coupling said length of electro-optic polymer between said first element and said second element.

Claim 13 (currently amended) ~~The transition structure of claim 12~~ A transition structure situatable between a first element having a first refractive index difference (Δn) percentage and a second element having a second Δn percentage higher than the Δn of said first element, said transition structure obtainable by the process steps of:

controlling the Δn along a length of electro-optic polymer to achieve a gradual transition from a low Δn to a high Δn along said length; and

optically coupling said length of electro-optic polymer between said first element and said second element,

wherein said controlling step comprises at least the step of:

performing selective deposition on a length of undoped substrate having plural doping regions, using increasing doping levels with each successive doping region.

Claim 14 (original) The transition structure of claim 13, wherein said selective deposition step is performed using a polymer dopant.

Claim 15 (original) The transition structure of claim 14, wherein said polymer dopant is deposited through photolithographic masking.

Claim 16 (original) The transition structure of claim 15, wherein said polymer dopant is deposited by spraying said polymer dopant through said photolithographic masking onto said substrate.

Claim 17 (original) The transition structure of claim 15, wherein said polymer dopant is deposited by dipping said photolithographically-masked substrate into said polymer dopant.

Claim 18 (original) The transition structure of claim 15, wherein said polymer dopant is deposited using vacuum pyrolysis.

Claim 19 (currently amended) ~~The transition structure of claim 12~~ A transition structure situatable between a first element having a first refractive index difference (Δn) percentage and a second element having a second Δn percentage higher than the Δn of said first element, said transition structure obtainable by the process steps of:

controlling the Δn along a length of electro-optic polymer to achieve a gradual transition from a low Δn to a high Δn along said length; and

optically coupling said length of electro-optic polymer between said first element and said second element,

wherein said controlling step comprises at least the step of:

performing diffusion doping on a length of undoped substrate having plural doping regions, increasing the diffusion time with each successive doping region.

Claim 20 (original) The transition structure of claim 19, wherein said step of performing diffusion doping comprises the steps of:

depositing a layer of an impurity source on said entire length of said substrate and leaving said layer on said substrate for a predetermined time period;

removing a portion of said layer covering a first of said plural doping regions and leaving the remainder of said layer on said substrate for a second predetermined time period;

repeating said removing step for each of said plural doping regions until all of said layer has been removed.

Claims 21 – 22 (canceled)